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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/265,432 | 03/10/1999 | AKIHIRO TERADA | 392.1627/JDH | 4506 |

21171 7590 08/11/2003

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| EXAMINER |
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NGUYEN, THU V

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| ART UNIT | PAPER NUMBER |
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3661

DATE MAILED: 08/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

| | | | |
|-----------------|------------|--------------|---------------|
| Application No. | 09/265,432 | Applicant(s) | TERADA ET AL. |
| Examiner | Thu Nguyen | Art Unit | 3661 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 29 May 2003.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1,3-9 and 11-16 is/are pending in the application.
- 4a) Of the above claim(s) 3-8 and 11-16 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1 and 9 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____.
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nio et al (U.S Patent No. 4,728,974).

As per claim 1, Nio teaches a robot system which comprises: an arm and a wrist (col.5, lines 10-17); a tool unit 5-8 (fig.1A) mounted on the wrist 4 (fig.1A) (col.3, lines 5-20), the tool unit having the effecting end point 8 (fig.1A) bias toward the final axis 3'(fig.1B).

Nio does not explicitly teach the robot arms with a plurality of links as claimed. However, using a robot with a movable arm having a plurality of links and being controlled by a controller would have been well known. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to attach the wrist and the end effecting of Nio to a well known robot arm with a plurality of links in order to facilitate moving the end effecting device.

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As per claim 9, refer to discussion in claim 1 above. Nio further teaches arranging the workpiece 10 (fig.1A) with respect to the final axis.

Nio does not explicitly teach rotating the final axis to perform machining on the work piece. However, Nio teaches the capability to rotate the effective end point 8 (fig.1) to perform machining on the workpiece (col.5, lines 20-23). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to rotate the effecting end when needed in order to perform suitable work on the workpiece.

Nio does not teach arranging the work piece so that the center axis of the workpiece is aligned with the final axis. However, Nio teaches arranging the work piece so that the final axis indicate the machining point (fig.1A), it would have been obvious to a person of ordinary skill in the art at the time the invention was made to arrange the center axis of the workpiece to be aligned with the final axis in order to perform machining at the center axis of the workpiece, since arranging the workpiece at an appropriate position so that the welder 7 (fig.1A) can reach a needed service point requires only routine skill in the art.

Cited Prior Arts

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
 - a. Suzuki et al (U.S Patent No. 4,507,042) teaches a working robot with an arm and a working tool bias with respect to a final axis.

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- b. Bruno Jau, "Dexterous Telemanipulation with Four Fingered Hand System", IEEE International Conference on Robotics and Automation, June 1995, teaches a robot hands with effecting end (fingers) that is capable of curving toward the final axis (fig.3).
- c. Nishida et al, "Development of an EVA end-effector, grapple fixtures and Tools for the satellite mounted robot system", IEEE 1996 teaches a robot system with the end effectors bias toward a desire axis (fig. 4a).

Response to Arguments

- 4. Applicant's arguments filed May 29, 2003 have been fully considered but they are not persuasive.

In response to applicant's argument on page 2, last paragraph, page 3, lines 1-5, independent claims do not explicitly claim that the effective end point is changed with the rotation of the final axis, nor do the independent claims claim how the workpiece in a form of a pipe is effectively performed with the rotational tool unit as asserted by the applicant. Further, applicant's attention is directed to the teaching of Nio on col.5, lines 20-23, in the section, Nio does suggest that the effective end tool 6 (fig.1) is moved when the axis 2' is rotated.

In response to applicant's argument on page 3, first paragraph that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references

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themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to combine references is found in the knowledge generally available to one of ordinary skill in the art. Applicant's attention is directed to the cited of the related arts in the last office action (paper no. 19) of Suzuki (US 4,507,042), Suzuki teaches the robot with a plurality of links for use in a welding robot (note that Nio also teach the welding robot) for welding different locations of a work piece (fig.1; col.1, lines 57-63), further, as taught by Suzuki, the effective end (the working tool) can be attached to the robot (col.1, lines 62-63), an ordinary person skill in the art at the time the invention was made would be able to attach the effective end of Nio to the robot of Suzuki to weld a work piece when certain welding location is needed to be reached.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any response to this final action should be mailed to:

Box AF

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 305-7687, (for formal communications; please mark "EXPEDITED PROCEDURE")

Or:

(703) 305-7687 (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park V, 2451 Crystal Drive, Arlington, VA., Seventh Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Nguyen whose telephone number is (703) 306-9130. The examiner can normally be reached on Monday-Thursday from 8:00 am to 6:00 pm ET.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Cuchlinski, can be reached on (703) 308-3873. The fax phone number for this Group is (703)305-7687 .

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703)308-1113.



Thu Nguyen

July 28, 2003